A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 28 December 2007 has been entered.

The amendments to the claims have overcome the 35 USC 112 rejections and the art rejections. However, a new grounds of rejection is made in view of the amended claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 6, 13 and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by the article by Liang et al.

This article teaches TiO_2 nanoparticles complexed or doped with 8-hydroxyquinoline. These particles read upon the claimed material since the TiO_2 particles are the matrix. While the reference does not teach the taught particles show semiconductivity, they have the same composition as claimed and thus must inherently have this property, absent any showing to the contrary. The reference teaches the claimed material.

Claims 1, 5, 10 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by the article by Takeda et al.

This article teaches an alumina film produced by a sol-gel method where aluminum propoxide and ethylacetoacetate are mixed in an organic solvent, coated onto a substrate and heated to 120°C. These particles read upon the claimed material since this is one of the methods disclosed in applicants' specification. While the reference does not teach the taught particles show semiconductivity, they have the same composition as claimed and thus must inherently have this property, absent any showing to the contrary. The reference teaches the claimed material.

Claims 1, 5, 7 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by the JP 06-166501

The abstract for this reference teaches a zirconia or tantalum oxide film produced by a sol-gel method where an alkoxide of Zr or Ta and a β-diketone are mixed in an organic solvent, coated onto a substrate and heated to form an oxide. These particles read upon the claimed material since this is one of the methods disclosed in applicants' specification. While the reference does not teach the taught particles show semiconductivity, they have the same composition as claimed and thus must inherently have this property, absent any showing to the contrary. The reference teaches the claimed material.

Claims 1, 5, 7, 9, 10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 4,247,597.

This reference teaches ferromagnetic oxide particles, which are transition metal oxides, treated with complexing carboxylic acids, such as coumarin-3-carboxylic acid or picolinic cid. These acids complex with the metal atoms in the surface of the particles and thus produce a particle doped with the acid ligand. Therefore these particles read upon the claimed material.

While the reference does not teach the taught particles show semiconductivity, they have the same composition as claimed and thus must inherently have this property, absent any showing to the contrary. The reference teaches the claimed material.

Claims 1, 5, 7, 10, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 4,362,510.

This reference teaches a cement formed by a chelating reaction between a metal oxide, where the metal is tin, a Group IIA or a Group IIB metal, preferably Zn and a chelating vanillic acid ester. The taught cement would be a vanillic ester doped metal oxide matrix and thus reads upon the claimed material. The reference teaches the composition can also contain a second chelating compound, which has the structure of claim 10 and are aromatic compounds, alumina particles and aromatic organic acids. The second chelating compound, the alumina particles and the aromatic organic acid all would be present in the cement and thus would read upon the claimed material. While the reference does not teach the taught particles show semiconductivity, they have the same composition as claimed and thus must inherently have this property, absent any showing to the contrary. The reference teaches the claimed material.

Claims 1, 5-8, 10 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,318,628.

This reference teaches alumina particles having a dye with chelating properties and containing dihydroxy azo or salicylic groups chelated thereto. The taught dyes have the structures of claims 5-8. The taught particles read upon those claimed since the particles are ligand doped metal oxides, where the oxide is the matrix. While the reference does not teach the taught particles show semiconductivity, they have the same composition as claimed and thus

must inherently have this property, absent any showing to the contrary. The reference teaches the claimed material.

Claims 11, 12 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There is no teaching or suggestion in the cited art of record of a organic-inorganic hybrid material comprising a ligand doped metal oxide having at least one kind of metal atoms, where the metal atom is selected from typical and transition metals, the ligand is bonded to the metal atoms by chelating and selected from a ligand having a carboxyl moiety and azomethyne group, where an oxygen in the carboxyl moiety and azomethyne group chelate with the metal; or a ligand having carbonyl group and a hydroxyamino moiety, where the oxygen atom in the hydroxyamino moiety and the carbonyl group chelate with the metal atoms. There is no teaching or suggestion in the cited art of record of an organic-inorganic hybrid material comprising a ligand doped metal oxide having at least one kind of metal atoms, where the metal atom is selected from typical and transition metals and the ligand is bonded to the metal atoms by chelating and further containing an aromatic compound selected from an organic pigment, an organic light emitter or an organic semiconductor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/
February 20, 2008

/C. Melissa Koslow/
Primary Examiner
Art Unit 1793